Cross-sectional morphology and minimum canal wall widths in C-shaped roots of mandibular molars

Type: Journal Article

Abstract:

The cross-sectional canal morphology and minimum widths of buccal and lingual canal walls were studied in 20 mandibular molars with C-shaped roots and canal orifices. The roots were mounted in clear resin blocks and sectioned transversely at 1-mm intervals. A total of 154 cross-sections were evaluated with an image analyzer. Twelve different longitudinal canal configurations were identified. The most prevalent were types 1-2 and 1-2-1 with each type occurring in four roots. Evaluation of the cross-sectional morphology showed that the configurations were complete "C" (27%), incomplete C (64%), and non-C (9%). The mean value for the minimum width of the lingual canal wall was 0.58 ± 0.21 mm and the buccal wall was 0.96 ± 0.26 mm. This suggests that there is a higher risk of root perforation at the thinner lingual walls of C-shaped canals during shaping and post canal preparation procedures. Both buccal and lingual canal walls were frequently narrower at mesial locations.

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